Pike County Conservation District

Erosion & Sediment Control Guidelines for Small Projects

Use of this Guide

This Guide is only for use in developing Erosion & Sediment (E&S) Control Plans for small projects that meet the following criteria:

- ✓ Slopes do not exceed a 10% grade
- ✓ There are no surface waters in close proximity to the proposed project
- ✓ Erosion control practices being used do not require engineering design/calculations
- ✓ Total area of disturbance is less than 1 acre

This Guide may also be used to develop E&S Control Plans when the landowner is submitting a Chapter 105 General Permit for acknowledgement. In addition, check with your municipality to determine if any local ordinance provisions or permit requirements apply to your project.

Please Note: This Guide is not appropriate for every project! Your project must meet the criteria listed above in order to use this Guide to develop your E&S Control Plan. For larger, more complex projects, a detailed *Erosion and Sedimentation Pollution Control Manual* is available through the Conservation District. Check your yellow pages for engineers or other consultants that can assist in developing E&S Control Plans. Contact the Pike County Conservation District if you are unsure of the suitability of this Guide for your project. Telephone: 570-226-8220.

Erosion and Sedimentation is a Serious Pollution Problem

Soil sediment is the number one pollutant to Pennsylvania's water resources. Sediment reduces water quality, degrades aquatic habitats killing fish and other aquatic life, and increases the frequency and intensity of flooding events. Any activity that disturbs the surface of the land can cause erosion and sedimentation. Completing and properly implementing an E&S Control Plan for your earth disturbance project will help protect Pike County's soil and water resources as well as the County's economic sustainability and quality of life.

State and Federal Regulations Require E&S Control Plans

To address the problem of sediment pollution, the Commonwealth of Pennsylvania, Department of Environmental Protection (DEP), adopted Chapter 102, Erosion and Sediment Control Rules and Regulations. Chapter 102 requires persons proposing or conducting earth disturbance activities to develop, implement and maintain *Best Management Practices* to minimize the potential for accelerated erosion and sedimentation. A written E&S Control Plan is required for all earth disturbance activities with the potential for discharge to waters classified as "High Quality" or "Exceptional Value" waters (which includes most of Pike County). In addition, the E&S Plan must be available at the project site during all stages of the earth disturbance activity. The Plan must be submitted to the Conservation District for review if required by the local municipality (or, in some cases, a Community Association) or requested by the Conservation District. Both landowners and contractors may be held responsible for any violation(s) of Chapter 102 regulations.

A Note about Streams, Floodways, Wetlands & Other Bodies of Water:

Any encroachment on any watercourse, floodway, or body of water without the appropriate federal and state permits is strictly prohibited by the Federal Clean Water Act, the Commonwealth of Pennsylvania's Dam Safety and Encroachments Act, The Clean Streams Law and Chapter 105 rules and regulations. In addition, some local municipalities have setbacks and other ordinance provisions related to water resources that may be applicable to certain land development activities. Plan ahead to avoid these areas or inquire about permit and other requirements well BEFORE beginning your project.

Putting Your Plan on Paper

What to Include in a Small Project E&S Control Plan:

- **Existing topography** (physical features) of the site and immediate surrounding area
- **Types of soils** on the site – refer to the County Soil Survey, available at the Conservation District
- **A description of land uses:** Describe past, present and proposed land uses and all proposed alterations to the site
- **Location of any surface waters** (streams, ponds, wetlands, springs, etc.)
- **A description of proposed E&S best management practices**, both temporary (such as hay bale barriers, silt fence, stone filters) and permanent (such as seeding and mulching, rock-lined channels, etc)
- **The sequence of earthmoving activities:** Outline the sequence in which the earthmoving will occur, remembering that the most effective method of controlling erosion is to disturb only those areas necessary to complete a project. E&S best management practices should be in place before the site is disturbed. Disturbed areas should be permanently stabilized immediately after earthmoving is completed or temporarily stabilized if delays in completing a project are anticipated
- **A maintenance plan** for all of the E&S best management practices being used on site

Getting Started

First things first! Implementing the following guidelines will minimize erosion *and* save money:

- **Avoid disturbing existing vegetation** - Vegetative cover is the most effective and economical protection against soil erosion. Whenever possible, protect existing vegetation during the construction process. Trees and shrubs should be marked and roped off to prevent damage by construction equipment. Filling and soil compaction around trees can result in permanent damage to trees and should be avoided.
- **Save topsoil** - Stockpile all topsoil from cuts and fills and redistribute uniformly after grading. This is a key to properly revegetating and stabilizing a disturbed site.
- **Minimize the area and time of exposure –** Disturb the minimum area required to complete a project. Don't start a job then leave it unfinished to work elsewhere. Plan your project to keep areas of disturbance and the length of time that disturbed soil is exposed to a minimum. Stabilize disturbed areas immediately as they are completed.
- **Work in the dry –** Plan work to avoid periods of bad weather. If your project involves work in or around watercourses, work only during periods of low flow. Flowing water should always be diverted around disturbed areas.
- **Avoid steep slopes –** Steep sites generally require more E&S controls than gently sloping sites. Avoid excessive cutting and filling and road grades in excess of 10%.
- **Plan to protect ditches, streams and other bodies of water –** Maintain existing vegetation along streams. Install temporary controls, such as silt fence, hay bales or rock filter berms to keep sediment from traveling to streams, wetlands and other surface waters.
- **Plan to maintain erosion control measures –** Hay bales deteriorate, silt fences clog with sediment and seeded areas wash out. Schedule regular maintenance checks to ensure properly functioning erosion control measures. Upgrade control measures when they fail or if maintenance problems occur frequently.

Timing is Everything!

Sample Sequence of Earthmoving Activity

1. **Install a tire cleaning, stabilized rock construction entrance** to keep dirt from being tracked onto adjacent roadways (see detail).
2. **Install temporary E&S best management practices** such as hay bales, silt fence, etc. (see details).
3. **Clear and rough grade site**.
4. **Stockpile topsoil**. Temporary protection (hay bales or silt fence) should be installed down slope (lower side) of the stockpile or the stockpile should be immediately stabilized with temporary seed (e.g., annual rye-grass) and mulched.
5. **Install and immediately stabilize any watercourses** (swales, ditches, etc.) with appropriate lining (e.g., seed, mulch, matting or netting, sod or stone).
6. **Construct structure(s)**.
7. **Finish, grade, and permanently stabilize** (seed, mulch, sod, etc.) the site.
8. **Maintain temporary E&S best management practices until grass is established**. A minimum of 70% stabilization of disturbed area with perennial vegetative cover or other permanent non-vegetative cover must be achieved before temporary erosion controls are removed.
9. **Remove temporary E&S best management practices** if applicable.

The Grass is Always Greener…

Tips for Successful Re-establishment of Vegetation

- ✓ **Time of Seeding** – For best results, grass and legume seedings should be done in the spring. Seed mixtures that are primarily grass are best suited for fall planting. However, through proper seed selection, site preparation and seeding methods, disturbed sites can be seeded at almost any time from spring to fall.
- ✓ **Surface Preparation** – Spread topsoil and prepare a smooth seed bed by rolling and/or raking.
- ✓ **Lime and Fertilizer** – Many disturbed sites are acidic and infertile - don't skip this step! A soil test determines the amounts of lime and fertilizer to apply. If soil test results are not available, apply at least 6 tons of agricultural grade limestone and 1000 pounds of 10-20-20 fertilizer per acre and work both as deeply as possible into the soil.
- ✓ **Choice of Seed Mixtures –** Chose a seed mixture that fits your particular site conditions. (Refer to *Some Suggested Temporary & Permanent Seeding Mixtures for Erosion Control* later in this publication.*)* Remember that "cheap" seed is generally not a bargain – it often has poor germination rates and may contain excessive amounts of weed seeds.
- ✓ **Seeding Methods** – Seeds applied with a drill should be planted at a controlled depth and the soil firmed around them to provide moisture for germination and growth. Surface broadcasting of seed is rarely successful without a layer of mulch applied at the necessary rates. Hydroseeding is another method of seeding where the seed, fertilizer and mulch are mixed with water and applied as a slurry. Some local landscapers or earthmoving contractors have the equipment necessary for hydroseeding, generally used only for revegetating larger disturbed areas.
- ✓ **Mulching** – All disturbed areas, regardless of seeding method, should be mulched to reduce erosion and aid seed germination. Hay and straw are preferred mulches and should be applied to produce a layer ¾ to 1 inch deep. Generally, 3 tons of mulch per acre (approximately 3 bales per 1000 sq. ft.) is sufficient. Straw or hay should not be chopped or finely broken.
- ✓ **Erosion Control Matting**, which helps hold seed and mulch in place, is required on all slopes with a 3 to 1 (33%) or steeper slope.
- ✓ **Water** – Don't forget to thoroughly water seeded areas during dry periods. For best results and to conserve water, water early in the morning or in the early evening, when sun and wind are at a minimum.

Some Suggested Temporary and Permanent Seed Mixtures for Erosion Control

Site Description	Species	Pounds/Acre	Pounds/1000 sq. ft
Slopes & Banks (non-mowed) Well Drained/Sunny	Birdsfoot trefoil, plus tall fescue **- or -** Flatpea, plus tall fescue or perennial ryegrass **- or –** Switchgrass or big bluestem, plus birdsfoot trefoil	6 30 10 20 20 15 6	0.15 (3 oz.) 0.7 (11 oz.) 0.5 (8 oz.) 0.5 (8 oz.) 0.5 (8 oz.) 0.3 (5 oz.) 0.15 (3 oz.)
Slopes & Banks (mowed) Variable Drainage/Shaded	Birdsfoot trefoil, plus tall fescue, plus redtop **- or -** Tall fescue, plus redtop	6 30 3 60 3	0.15 (3 oz.) 0.7 (11 oz.) 0.1 (2 oz.) 1.4 (22 oz.) 0.1 (2 oz.)
Slopes & Banks (mowed) Well Drained	Tall fescue, plus fine fescue, or Kentucky bluegrass, plus redtop **- or -** Perennial ryegrass plus tall fescue, plus fine fescue	60 35 25 3 15 40 10	1.4 (22 oz.) 0.8 (13 oz.) 0.6 (10 oz.) 0.1 (2 oz.) 0.3 (5 oz.) 1.0 (16 oz.) 0.2 (3 oz.)
Temporary Seedings	Annual ryegrass (spring or fall), or spring oats (spring), or winter wheat (fall), or winter rye (fall)	40 96 180 168	1.0 (16 oz.) 2.2 (35 oz.) 4.1 (66oz.) 3.8 (62 oz.)

Small Project Erosion & Sediment Control Plan

Property Owner:_____ Date: _____

Address:_____

City:_____ State:_____ Zip:_____

Telephone:_____ Municipality:_____

Contact person (if other than property owner):_____ Phone #_____

Location (Include copy of topographic map):_____

Name of nearest receiving stream or body of water:_____

Estimated dates for start-up and completion: Start:_____ End:_____

Type of project (house, addition, store, etc.): _____

Project acres (entire lot size):_____ Disturbed acres:_____

Present site conditions (vegetative cover, existing disturbance, type of land use, etc.):_____

_____

Soil type (s) (Include Soil Map):_____

NARRATIVE (Provide detailed description of proposed work)

_____

_____

_____

_____

_____

_____

_____

SEQUENCE OF CONSTRUCTION (Label each step in numerical order – be specific.)

_____

_____

_____

_____

_____

_____

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_____

_____

TEMPORARY CONTROLS

Detail any temporary E&S best management practices that will be implemented. List each practice separately; explain why it is needed, and when it can safely be removed. Drawings and designs for any best management practices not illustrated in this guide should be attached and referenced in this section.

PERMANENT CONTROLS

Prior to completion of the project, state law requires that steps be taken to provide permanent stabilization. Re-establishment of vegetation, riprap, gravel or pavement, etc. are examples of permanent controls. Descriptions for re-vegetating should include the seeding mixture to be used, top soil applications, and lime and fertilizer instructions.

MAINTENANCE PROGRAM

All E&S best management practices require maintenance to function properly. Hay bale dikes deteriorate and clog with sediment. Newly seeded areas may fail to germinate or be washed out by heavy rain. Hay bale dikes and filter fabric fences should be cleaned when they reach half of their capacity. Describe all measures that will be implemented to ensure that E&S best management practices will continue to function properly and specify who will be responsible for maintenance activities.

****** IMPORTANT ******

- ✓ **Keep a copy of this plan for your records. This plan must be on site at all times during earthmoving. PROVIDE A COPY TO YOUR CONTRACTOR, if applicable.**
- ✓ **To ensure prompt review of your completed plan, include all required information and a PCCD application form.**
  Mail to: Pike County Conservation District, 556 Route 402, Hawley, PA 18428.
- ✓ **Please allow adequate time for review of your plan. Plan submissions are reviewed in the order in which they are received generally within 30 business days.**
- ✓ **Check with your municipality regarding any local ordinance provisions or permit requirements that may apply to your project.**

Small Project Erosion and Sediment Control Plan Drawing

ROAD

STREAM

BOUNDARY LINE

SLOPE 8%

ROCK CONSTRUCTION ENTRANCE RCE

CULVERT

STRAW BALE BARRIER SBB

FILTER FABRIC FENCE FF

ROCK FILTER BERM

LIMIT OF DISTURBANCE

DRAINAGE SWALE

PROPERTY OWNER:_____

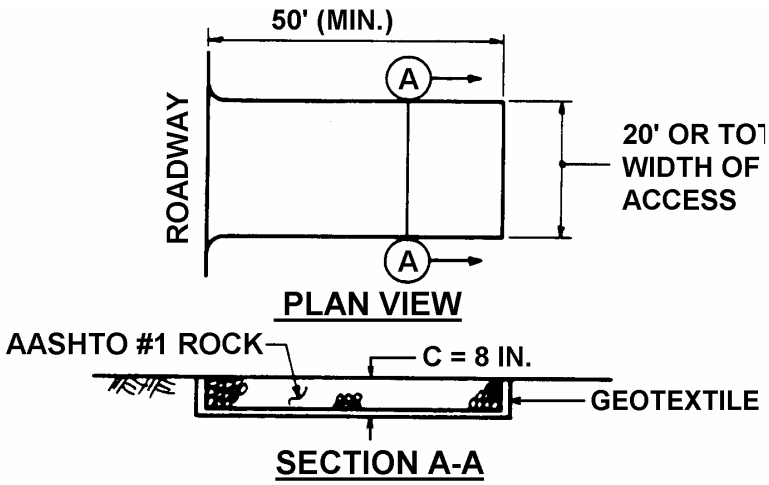
PROJECT:_____

MUNICIPALITY:_____

DATE:_____

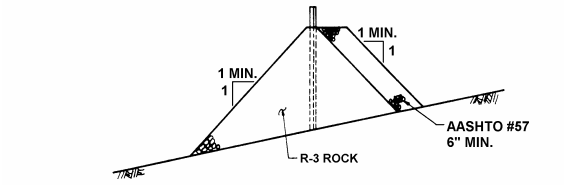
APPROXIMATE SCALE: 1" = _____

Rock Construction Entrance

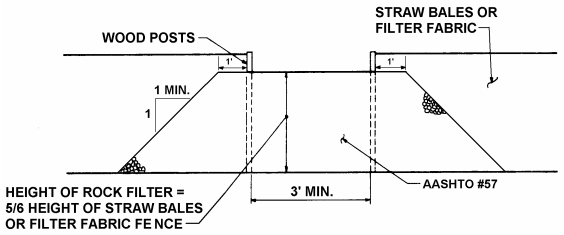


MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site.

Rock Filter Outlets



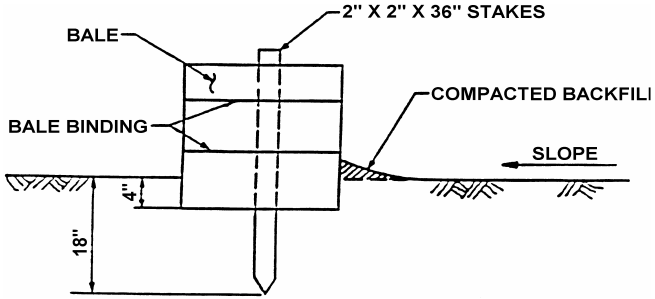
OUTLET CROSS-SECTION



UP-SLOPE FACE

Sediment must be removed when accumulations reach 1/3 the height of the outlet.

Straw Bale Barriers

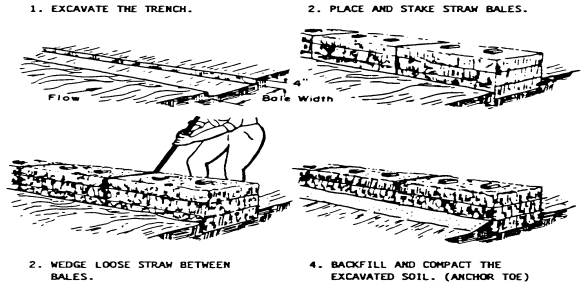


Straw Bale Barriers should not be used for more than 3 months.

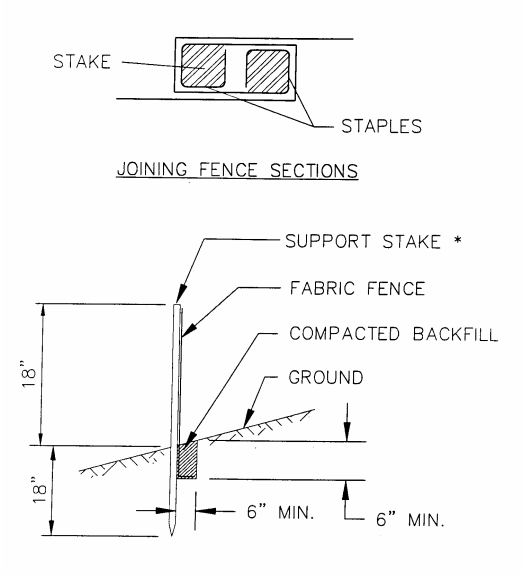
Straw Bale Barriers shall be placed at existing level grade. Both ends of the barrier shall be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.

Sediment shall be removed when accumulations reach 1/3 the above ground height of the barrier.

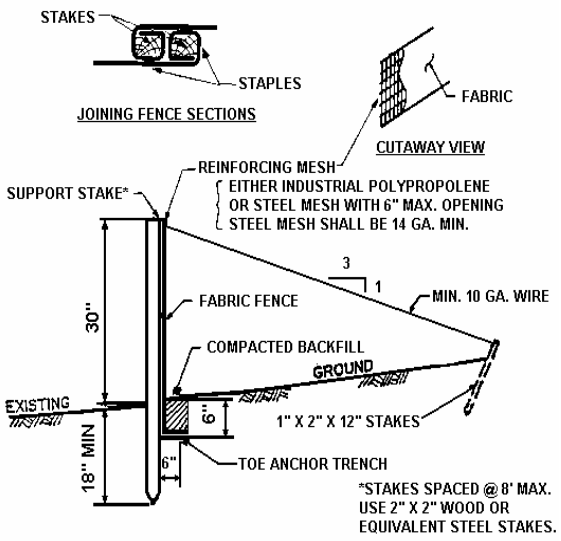
Any section of Straw Bale Barrier that has been undermined or topped shall be immediately replaced with a Rock Filter Outlet.



Standard Filter Fabric Fence (18” High)



Reinforced Filter Fabric Fence (30" High)



*Stakes spaced @ 8’ maximum.
Use 2"x 2" wood or equivalent steel stakes.

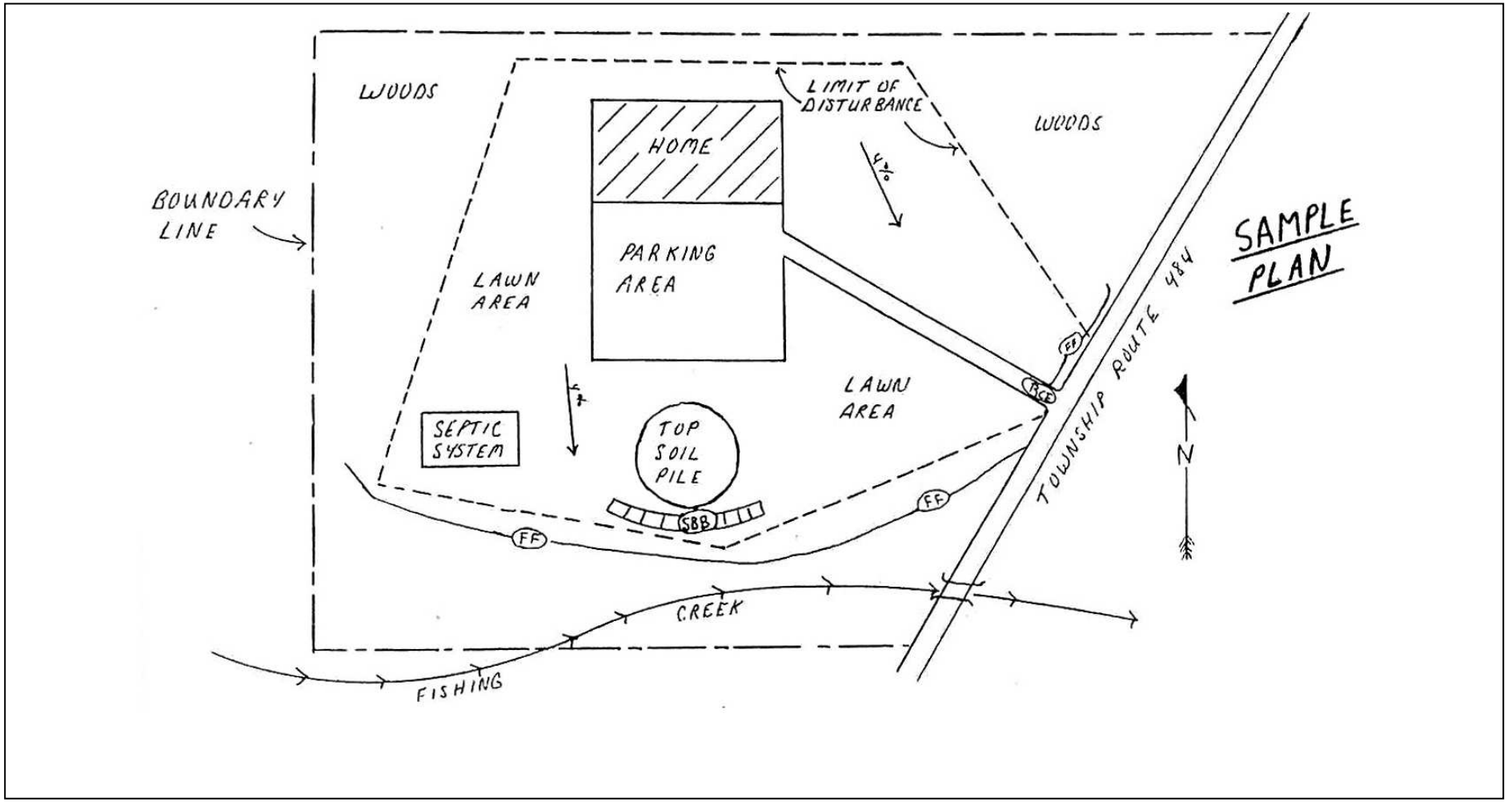
Filter fabric fence must be installed at existing level grade. Both ends of each fence section must be extended at least 8 feet upslope at 45 degrees to the main fence alignment.

Sediment must be removed where accumulations reach 1/ 2 the above ground height of the fence.

Any fence section that has been undermined or topped must be immediately replaced with a rock filter outlet.

Slope -Percent	**Maximum Slope Length (ft) Above Fence**		
	Straw Bale Barriers	**18”High Fence**	**30” High Fence**
2 (or less)	150	150	500
5	100	100	250
10	50	50	150
15	35	35	100
20	25	25	70
25	20	20	55
30	15	15	45
35	15	15	40
40	15	15	35
45	10	10	30
50	10	10	25

Sample Small Project Erosion and Sediment Control Plan Drawing



LEGEND & SYMBOLS

ROAD		CULVERT	
STREAM		STRAW BALE BARRIER	SBB
BOUNDARY LINE		FILTER FABRIC FENCE	FF
SLOPE	8%	ROCK FILTER BERM	
ROCK CONSTRUCTION ENTRANCE	ACE	LIMIT OF DISTURBANCE	
		DRAINAGE SWALE	

PROPERTY OWNER: John Doe

PROJECT: Doe Home

MUNICIPALITY: Doe Township

DATE: 00-04-00

APPROXIMATE SCALE: 1" = 50'

For information or assistance contact:

Pike County Conservation District

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Hawley, PA 18428
Phone: (570) 226-8220
Fax: (570) 226-8222
Email: pikecd@pikepa.org

Visit our website at
www.pikeconservation.org

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